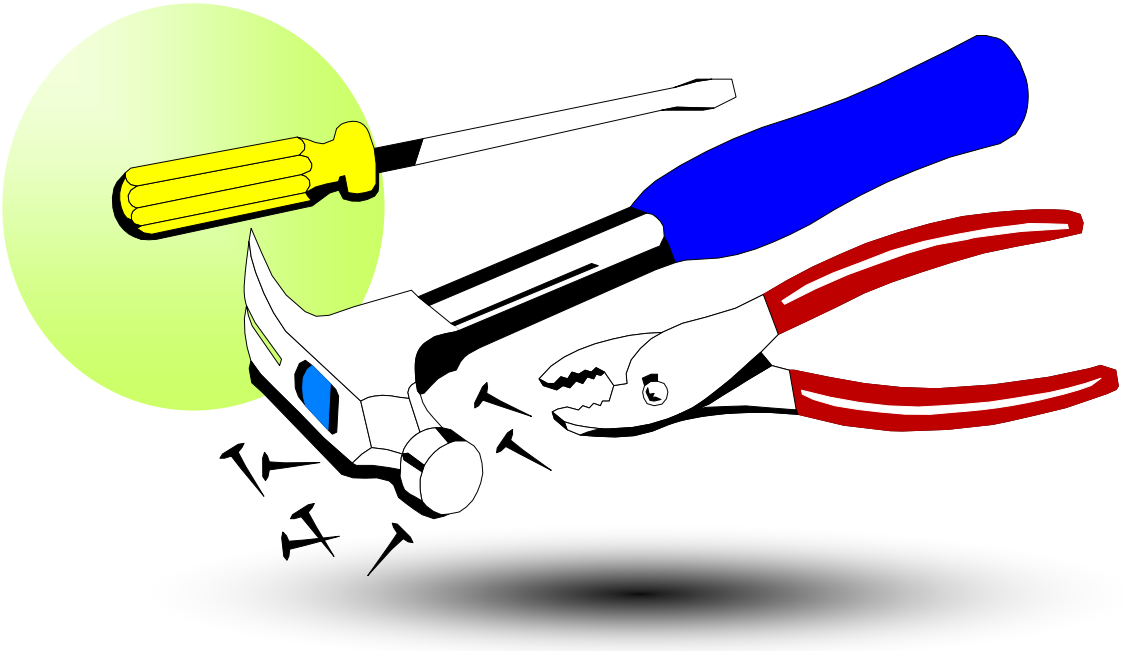
Tehachapi High School



Ag. Mechanics Tool Identification Book

TABLE OF CONTENTS

Tool Pictures/Descriptions . . . . . 1 - 80

Category	Page(s)
ABS Pipe and Fittings	62 - 63
Arc Welding Tools and Equip.	73 - 76
Axes	1
Bars	7
Bolts	18 - 19
Boring Tools	35 - 36
Brooms and Brushes	9
Chains	29 - 30
Chisels - Metal	37 - 38
Clamps	7 - 8
Concrete and Masonry Tools	50 - 52
Copper Pipe, Fittings and Tools	58 - 60
Electrical Tools	63 - 72
Fencing	26 - 28
Files	38 - 39
Garden Tools	9 - 11
Gas Welding Equip. and Tools	76 - 77
Glazing and Painting Equip.	78 - 80
Hammers - Metal	37
Hammers - Wood	44
Hinges and Hasps	25 - 26
Measuring Tools	13 - 15
Mechanics Tools/Equipment	72 - 73
Metals	32 - 35

Category	Page(s)
Misc. Tools	11 - 12
Nails	22 - 24
Nuts	19 - 20
Pipe and Pipe Fittings	54 - 58
Pliers	1 - 2
Plumbing Tools	53 - 54
Precision Tools	41
Punches	2 - 3
PVC Pipe, Fittings and Tools	60 - 62
Rope Types and Knots	31 - 32
Screwdrivers	3 - 4
Screws	21 - 22
Sheet Metal Tools	41 - 42
Sockets and Wrenches	4 - 7
Springs	28 - 29
Surveying Equipment	16 - 18
Taps and Dies	39 - 40
Valves	57 - 58
Vises	8 - 9
Washers	20 - 21
Wood Saws	44 - 45
Wood Tools and Equip.	46 - 49
Wood Types	42 - 43

Picture Grouping:

	Arc Welding Tools/Equipment
	Cold Metalwork
	Concrete Tools
	Electrical
	Fabrication
	Fasteners
	Hand Tools
	Landscaping

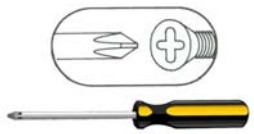
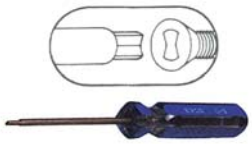
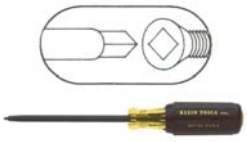
	Materials
	Miscellaneous Tools
	O/A Gas Cutting/Welding Equipment
	Plumbing Tools/Fittings
	Ropes/Binding Tools
	Surveying/Forestry
	Woodworking

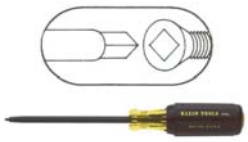
Appendixes 81
Tool Index 83

Section 1

1. <u>Hand Axe</u> Designed to cut small limbs or brush. Can be used to cut and drive small stakes, grading stakes, and corner stakes. The hand axe is similar to the single bit axe but smaller. The handle is 16 to 18 inches long.	
2. <u>Single Bit Axe</u> Used to build fences, cut small trees and construction work. This very versatile tool should not be used as a sledge hammer on wedges or iron stakes. Handles are usually of hickory, 36 inches long, oval in cross section and shaped for good balance.	
3. <u>Double Bit Axe</u> Used to cut small trees, trim logs and tops. Its two cutting edges should not be left in a vertical position because of the safety hazard. The 36 inch handle is oval and straight.	
4. <u>Slip Joint Combination Pliers</u> Useful for a variety of small and/or large jobs. Used to hold flat or round items, to cut and/or twist soft wires.	
5. <u>Diagonal Cutting Pliers</u> Has curved handles and lap joined. The diagonal cutting jaws are used to cut soft wire.	
6. <u>Battery Pliers</u> Used to loosen and tighten nuts on battery terminal clamps. The end clearance prevents cell-cover damage.	
7. <u>Water Pump Pliers</u> Has parallel jaws to work with odd shapes. Ideal use for service and maintenance, equipment repair, automotive and general use.	

8. <u>Retaining Ring Pliers</u> Used to remove and install internal and external retaining (snap) rings.	
9. <u>Fence Pliers</u> Drives, pulls, and lifts staples. Also designed to cut double standard barbed wire. The grip between the handles hold the wire tightly while leverage is exerted against the fence post to stretch the wire tightly.	
10. <u>Locking Pliers</u> Used as a gripping tool, pipe or locking wrench, adjustable wrench, or vise. Locks with a toggle action that holds until the lever is opened. Commonly called Vise-Grip Pliers.	
11. <u>Center Punch</u> Is used to place a small indentation in metal before drilling. This prevents the drill bit from scoring its own starting position. They are made in various diameters and lengths.	
12. <u>Drift Punch</u> Used to line up holes for various materials and/or equipment. The shank is tapered. Comes in various diameters and lengths.	
13. <u>Pin Punch</u> The punch has a long straight shank, the diameter of which designates the size. Used to remove bolts and pins.	
14. <u>Prick Punch</u> Prick punches are used for marking. The punch should be sharp and ground to 30 degrees.	
15. <u>Leather Punch</u> Used to punch holes in soft materials like leather, plastic, canvas, cardboard and/or rubber. The handles are similar in design to pliers.	

16. <u>Hole Punch</u> This punch is used to make holes in gaskets and other soft materials. Also called a "belt punch" and come in various sizes.	
17. <u>Phillips Screwdriver</u> Used to drive screws into and out of various materials. Always select the correct size for the application. Tip sizes are numbered #0, #1, #2, #3 and shank lengths will vary.	
18. <u>Slotted Screwdriver</u> Used mostly in woodworking applications. Tip sizes will vary in width 1/4", 5/16", and 1/2". Shank lengths will also vary. Use the correct tip size for each application.	
19. <u>Stubby Screwdriver</u> The screwdriver will have a slotted or phillips tip, and a blade length of 1-1/4 to 1-1/2 inches long. Used to drive screws in and out of various materials and in a confined space.	
20. <u>Offset Screwdriver</u> Used to reach screws in angles and tight places that conventional screwdrivers can not. Tips will be either slotted or phillips or a combination at each end.	
21. <u>Screwdriver Bits</u> Available in slotted, phillips, square, and torx drives for power screwdrivers. Shank is hexagonal and will vary in length.	
22. <u>Clutch Driver</u> This is a specialty drive that fits screws used in mobile homes, boats, recreational vehicles, and electric motors.	
23. <u>Square Recess Screwdriver</u> Each screwdriver is color coded for easy size identification.	

24. <u>Torx Head Screwdriver</u> Used on appliances, lawn/garden and electronic equipment. The Torx screwdrivers have six points and are listed by size with Torx T-1 being the smallest. As the size increases, the number increases after the "T".	
25. <u>Nut Driver</u> This is a very popular tool in the electrical and sheet metal industry.	
26. <u>Six Point Socket</u> This socket has 6 points inside to fit over hexagonal nuts.	
27. <u>Eight Point Socket</u> Has 8 points and used on square nuts found on farm equipment.	
28. <u>Twelve Point Socket</u> This socket has thin walls to fit in tight places.	
29. <u>Deep Socket</u> The deep socket is made in standard, thin, and extra thin walls, with 6 or 12 point openings and comes in 3/8, 1/2, or 3/4 inch drives.	
30. <u>Flex Socket</u> This permits working at various angles.	
31. <u>Universal Joint</u> It makes work possible in restricted places where the wrench cannot be aligned with the bolt.	

32. <u>Socket Adaptor</u> Allows the use of larger drive sockets with smaller socket drives; i.e., 1/2 and 3/8 inch drive ratchet.	
33. <u>Extension Bar</u> Used to connect the socket wrench to the ratchet handle to give additional working clearance, and they range from 3 to 20 inches long.	
34. <u>Slide Bar Handle</u> Used as a "T" or "L" handle and is normally used with an extension.	
35. <u>Flex Handle</u> The end that fits into the socket is swivel hinged, and the other end has a hole with a sliding cross bar to permit use of the wrench at an angle.	
36. <u>Ratchet Handle</u> The ratchet speeds up the work by tightening or loosening bolts. Common drive sizes are 1/4", 3/8", 1/2" and 3/4".	

Section 2

37. <u>Speed Handle</u> Used to rapidly remove a nut or bolt. Common drive sizes are 3/8", 1/2", and 3/4".	
38. <u>Open End Wrench</u> Both ends of the wrench are open but are of different sizes. Best wrench to use on square headed nuts and/or bolts.	
39. <u>Box End Wrench</u> Used to tighten or loosen nuts and/or bolts. This wrench is available in 6 and 12 point ends.	
40. <u>Combination End Wrench</u> Used to tighten or loosen nuts and/or bolts. This wrench has the advantage of having both open and box ends. Both ends of the wrench are of the same size.	
41. <u>Tubing Wrench</u> Has a 6 point box end at each end and both are slightly open to allow tubing to fit through. Also called a flare nut wrench.	
42. <u>Adjustable Wrench</u> Size is designated by the length in inches of the handle. Jaws of the wrench are adjustable.	
43. <u>Chain Wrench</u> It is made in several sizes ranging from 13-3/4 to 87 inches long, and will have a handle pipe from 1/8 to 18 inches in diameter.	

44. <u>Strap Wrench</u> The adjustable strap is useful in rotating large diameter objects like filters.	
45. <u>Hex Key</u> This wrench is made of hexagon stock with one end bent to a 90 degree angle. Also known as an Allen Wrench.	
46. <u>Flat Pry Bar</u> Contoured flat bar, with beveled nail slots at each end. Also called a Wonder Bar (Stanley brand name).	
47. <u>Pry or Fitting Bar</u> It is long, round and tapers at one end, and at the other end, it has a curved pry hook.	
48. <u>Crow Bar</u> It is normally four or five feet in length with one end being tapered round and the other end having a chiseled point.	
49. <u>Ripping Bar</u> Usually it is of octagon tempered steel. Used for demolition and pulling large nails. Also known as a Wrecking Bar.	
50. <u>Bar Clamp</u> Bar type clamps have a quick non-slip adjustment to accommodate a variety of sizes; twisting the screw type handle applies additional pressure for tightening.	
51. <u>Pipe Clamp</u> A clamp made with a steel pipe.	

52. <u>Strap Clamp</u> Uses a fabric strap that tightens around large or irregular projects.	
53. <u>C Clamp</u> The screw has a sliding bar or a thumb screw at one end, and a ball and socket pad at the other end. Sizes range from 2 to 12 inches.	
54. <u>Locking Welding Clamp</u> Works well when clamping two pieces adjacent to each other or at a 90 degree angle.	
55. <u>C Clamp Locking Pliers</u> Used for clamping irregular shapes quickly and firmly when welding or fastening.	
56. <u>Spring Clamp</u> Jaws are specially formed to hold flat or round objects.	
57. <u>Corner Clamp</u> Jaws are at 90 degree angles. Used to clamp items like cabinet and picture frames.	
58. <u>Drill Press Vise</u> Drilling is safer, more accurate, and fewer drill bits are broken, when a vise is being used.	
59. <u>Machinist's Vise</u> A bench mounted vise for metal with a swivel base and replaceable jaws. It should not be used for hammering or bending metal. Also known as a Bench Vise.	

60. <u>Woodworker's Vise</u> The flat smooth jaws open up to 12 inches. Jaws may be lined with wood.	
61. <u>Push Broom</u> Handles are 7/8 inches in diameter and 4 to 5 feet long. One end is threaded to fit in the brooms body or may bolted on.	
62. <u>Bench Brush</u> The overall length is 16 inches and is used to clean up small trash.	
63. <u>Parts Brush</u> The metal handle is usually sealed at both ends to enable the brush to float in solvent to prevent losing the brush in the solvent tank.	
64. <u>Wire Brush</u> Used to clean machinery parts. Also used to clean and remove rust or slag from metal parts for welding.	
65. <u>Square Point Shovel</u> Used for scooping materials such as sand and gravel. Typically the handle is about 50 inches long.	
66. <u>Round Point Shovel</u> A shovel used for digging. Typical handle is approximately 50 inches.	
67. <u>Irrigating Shovel</u> The same as the round point shovel except the blade is almost straight with the handle.	

68. <u>Scoop Shovel</u> The handle is a short capped ferrule "O" type or 54 inch long handle.	
69. <u>Contractors Wheelbarrow</u> Used widely in the construction industry. Typical capacity is 1/5 of a cubic yard. Wheel is pneumatic.	
70. <u>Pick Mattocks</u> Similar to the cutter mattocks except one end of the blade comes to a sharp point for breaking or digging in hardpan or very hard soil.	
71. <u>Cutter Mattocks</u> The blades ends are rotated at 90 degrees and oval hole is in the center for the handle which is sold separate.	
72. <u>Clay Picks</u> The handles for all picks are 32 inches long and are larger at the head or blade end.	

Section 3

73. <u>Posthole Digger</u> It is operated by thrusting the points into the soil and spreading the handles to pick-up and remove soil. Also called a Clam Shell.	
74. <u>Posthole Auger</u> It is operated by rotating the handle.	
75. <u>Bow Rake</u> Has 15, 2-1/2 inch pointed teeth attached at 90 degrees to a 5 foot ferruled handle.	
76. <u>Hog Ringer</u> It is some what like a pair of pliers except the jaws of the ringer have special slots for holding a ring.	
77. <u>Bolt Cutters</u> The toggle and lever joints develop great mechanical advantage. Commonly used to cut bolts, chain, and reinforcing bar.	
78. <u>Chain Saw</u> Most chain saws are gasoline powered, but smaller pruning saws can be electric or hydraulically powered.	
79. <u>Safety Glasses</u> Safety glasses have side shields and cover the eyes. The California State Educational Code states that all students, teachers, and visitors in a school shop must wear eye protection.	

80. <u>Safety Goggles</u> Eye protection that covers eye glasses.	
81. <u>Face Shield</u> Eye protection that covers the entire face. Often used with safety glasses when full protection of the face is required. Used when grinding or cutting metals.	
82. <u>Anvil</u> Sizes range in weight from 20 to 200 lbs. Used to shape cold and hot metal.	
83. <u>Air Compressor</u> Used for supplying compressed air for spray painting and operating air tools at low pressures. Compressed air should not be used to clean one's self.	
84. <u>Cut Off Saw</u> Cutting wheels are disposable. Used for cutting steel bar and pipe.	
85. <u>Rotary Hammer</u> Used for drilling holes in concrete and with chisel attachments. Special carbide tipped bits must be used with this unit.	
86. <u>Staple Gun</u> Heavy duty and light utility models are available to drive 1/4 to 9/16 inch staples.	
87. <u>Hammer Tacker</u> A stapler that operates like a hammer. Used to install insulation, builder's paper, roofing felt, etc.	

88. Fiberglass Tape

Lengths of 50', 100', 200', and 300' are common. Tape maybe graduated in feet and inches, feet and 1/100', or metric.

89. Steel Tape

It should be cleaned after each use and kept free from dirt and rust.

90. Measuring Wheel

Used to measure long distances such as field boundaries or road length where high accuracy is not required.

91. Combination Square

A level and a scribe are contained in the beam. May be used to measure 45 and 90 degree angles.

92. Try Square

It is marked in 8ths and 16ths of an inch. Marks 90 degree angles.

93. Framing Square

Are marked in 12ths of an inch on the back side. Also called a Carpenter's or Steel Square. Many of these squares are inscribed with rafter tables.

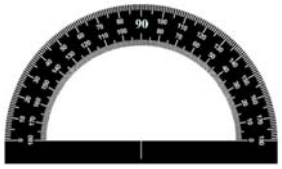
94. Rafter Square

An aluminum square marked for cutting rafters and angles. Also can be used as a guide for cross cutting with a circular saw. Small size will fit in a nail pouch.

95. Sliding "T" Bevel

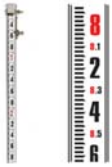
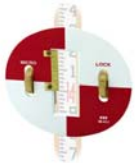
After it is set at the correct angle, it is much the same as a square.

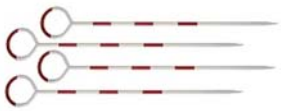
96. <u>Marking Gauge</u> It is marked in 8ths and 16ths of an inch and is 8 inches long. Used to mark the wood for cutting.	
97. <u>Carpenter's Level</u> Used for marking level lines and for checking surfaces for level and plumb. Typical length is 24 to 48 inches. Longer levels are often called masonry levels since they are commonly used to lay brick.	
98. <u>Line Level</u> It consists of a bubble tube housed in a metal or plastic case which has hooks for attaching to a string line.	
99. <u>Chalk Line</u> A special container contains the chalk powder and string line which is on a winding spool. Excellent to use in marking long lines on floors, plywood, and roofs.	
100. <u>Micrometer</u> Used in precision measuring. Normal sizes range from 0 to 1 inch and up to 12 inches. Care should used when handling.	
101. <u>Dial Caliper</u> Capacity is from 0 to 6 inches.	
102. <u>Fractional Vernier Caliper</u> Used for precision measuring, direct reading of 16ths and 32nds of an inch on the handle, and the vernier readings are of 1/128ths of an inch.	
103. <u>Inside Calipers</u> The calipers are adjusted to the diameter of the object and then laid on a rule where the reading is taken.	

104. <u>Outside Calipers</u> The calipers are adjusted to the outside diameter of the object and then laid on a rule where the reading is taken.	
105. <u>Dividers</u> Used for marking out circles or parts of circles, for transferring or duplicating short measurements, and for dividing distances into a number of equal parts.	
106. <u>Depth Gauge</u> Usually graduated in 32nds and 64ths of an inch.	
107. <u>Feeler Gauge</u> Used for gauging the clearance or spacing of valve tappets and other jobs where accurate measurements of .001 to .032 is desired.	
108. <u>Protractor</u> Used to mark angles. It is graduated from 0 to 180 degrees.	

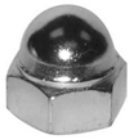
Section 4

109. <u>Soapstone</u> Unlike chalk, it is hard enough not to mark hands or clothing and can be used in holders that resemble pencils.	
110. <u>Scratch Awl</u> Used to mark wood or sheet metal. Also used as a punch for making small holes in light gauge sheet metal for the insertion of sheet metal screws.	
111. <u>Scribe</u> Used to mark sheet metal. The tip is brittle and will snap off if dropped on the point or used as a center punch.	
112. <u>Plumb Bob</u> Can be used to establish a plumb line in laying brick or concrete blocks. Used to establish a specific point when using a transit in surveying.	
113. <u>Builder's Level</u> A telescope instrument used to check level of forms or field grades. Builders' levels are designed to be used for short distances. Farm or dumpy levels are similar, but have more powerful telescopes. Farm levels are used for longer distances.	
114. <u>Transit</u> Similar to a level, but a transit telescope can be tilted vertically to measure vertical angles. Surveyor's have generally replaced these with "Total Stations", but transits are still used to measure vertical angles in construction.	
115. <u>Surveying Tripod</u> Used to hold a level or other survey instrument. To protect threads, keep cap on when not in use.	

116. <u>Laser Level</u> A level that uses a rotating laser beam to establish a level plane. Leveling can be done with a single person.	
117. <u>Laser Level Receiver</u> The receiver detects the laser beam of the laser level. Can be fitted to a Philadelphia or Direct Elevation rod.	
118. <u>Global Position System Receiver</u> Also called a GPS receiver, they use satellites to establish a position (e.g. latitude and longitude). Survey grade receivers are accurate to 2 cm and Differential GPS's (accuracy 2 cm -1 m) are used in Agriculture to map fields and guide tractors.	
119. <u>Hand Level</u> The hand level is held in the hand thus providing little accuracy.	
120. <u>Direct Elevation Rod</u> Rod reads elevations directly (without subtracting from the HI) by using a sliding tape. Some rods have a cut/fill scale for use in grading.	
121. <u>Philadelphia Rod</u> Reads like a tape measure. An adjustable target is available to allow readings up to 700 feet in distance.	
122. <u>Rod Target</u> Used with the surveyor's rod to allow readings at a greater distance.	
123. <u>Range Pole</u> A simple pole used in lieu of a rod where elevation measurement is not needed. The pole is red and white with each color section is 1 foot long.	

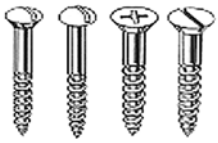
124. <u>Surveyor's Steel Tape</u> Used to measure distance when surveying. Also known as a "Chain." These tapes are stored on a reel or may be coiled.	
125. <u>Surveyors Arrows</u> Sizes range from 10-14 inches in length. Used to mark distances (every 100 feet) when "chaining" or measuring distances.	
126. <u>Cap Screw</u> A threaded screw for machine parts; screws into a tapped hole. It resembles a short bolt with a hexagon head with either coarse, fine, or metric threads.	
127. <u>Lag Bolt</u> The bolt has a square or hex head with a tapered wood screw on the other end. Common sizes range from 1/4 to 1/2 inch in diameter, 2" and 12" long. Also known as a Lag Screw.	
128. <u>Carriage Bolt</u> Has a domed head, and the shaft is topped by a short square section under the head. Used to bolt two or more pieces of wood together. A washer is not needed under the head of the bolt.	
129. <u>Machine Screw</u> The head is slotted for a screwdriver and may be either round or flat. Generally a smaller fastner (less than 1/4" in diameter), the shaft is threaded the entire length. Typical sizes vary from 4 to 12.	
130. <u>Machine Bolt</u> A bolt with a square or hexagonal head on one end and a threaded shaft on the other end; used to connect metal parts.	
131. <u>Grade 2 Bolt</u> A bolt that has no markings on the head and is made from low or medium carbon steel. It is commonly used for landscape applications and other applications where strength in not important.	

132. <u>Grade 5 Bolt</u> Made from medium carbon steel that has been quenched and tempered. A mildly hard bolt used in machinery and equipment applications. There are three markings on the head of the bolt.	
133. <u>Grade 8 Bolt</u> A hardened bolt used where high tensile strength is required. There are 6 markings on the head and is made from medium carbon alloy steel that has been quenched and tempered.	
134. <u>Eye Bolt</u> It has an eye on one end and coarse or fine threads on the other.	
135. <u>Toggle Bolt</u> When a firm anchorage is needed in walls and/or ceilings.	
136. <u>Plow Bolt</u> No wrench is necessary to hold the bolt head. Name of bolt is basically where it is used.	
137. <u>Hex Nut</u> It may have NC, NF or metric threads.	
138. <u>Square Nut</u> Used on farm implements with carriage bolts, machine bolts, stoves bolts and plow bolts.	
139. <u>Self-Locking Nuts</u> When tightened on a bolt, the scored threads bite into the threads of the bolt preventing it from backing off.	

140. <u>Castellated Hex Nut</u> Used with a cotter pin to prevent loosening or tightening. The top of the nut is smaller in diameter than the base.	
141. <u>Slotted Hex Nut</u> It differs from the castellated nut in that there is no stepped-in castle-like top.	
142. <u>Cap Nut</u> A nut closed on one side to cover an exposed bolt.	
143. <u>Wing Nut</u> Used where hand tightening is desired, such as inspection covers.	
144. <u>Lock Washer</u> Used to keep the nut from coming loose; should not be used on wood.	

Section 5

145. <u>Flat Washer</u> Used to prevent the nut from rubbing and becoming imbedded in the bolted material. Also called a Cut Washer.	
146. <u>Fender Washer</u> The large holes are used for aligning or adjusting for proper fit.	
147. <u>Finishing Washer</u> This is a chrome plated countersunk washer used with oval head wood or metal screws.	
148. <u>Malleable Iron Washer</u> Used where excess pressure or stress is exerted on wooden structures.	
149. <u>Torx Head Screws</u> The head is similar to the Phillips by having a six point star shaped opening in the center of the head rather than a four point star.	
150. <u>Set Screw</u> When screwed into a set collar the cut point makes an indentation in the shaft preventing the collar from vibrating loose.	
151. <u>Self Drilling Screws</u> No pre-drilling is necessary when using a self drilling screw.	

152. <u>Sheet Metal Screws</u> Head types are flat, round, pan, oval and binding.	
153. <u>Deck Screws</u> A straight shank wood screw with a bugle head. Commonly made with a Phillips or square drive and are 2-1/2 inches long or longer. Coated to prevent rusting.	
154. <u>Drywall Screws</u> All are Phillips except the Hex Wafer Head. Used to fasten drywall. Bugle shaped flat head.	
155. <u>Self Tapping Screws</u> This screw has a sharp point with coarse threads that makes their own threads when screwed into a pre-drilled hole that is smaller than the diameter of the screw.	
156. <u>Wood Screws</u> A tapered screw with a round, oval, or flat head. The threaded portion of the screw is tapered and starts a short distance from the head. These screws have coarse threads and will cut their own threads as they are turned into the wood.	
157. <u>Screw Hook</u> Can be screwed into wooden walls, concrete or masonry when pre-drilled and a plastic or lead anchor is used.	
158. <u>Screw Eye</u> It may be described as a screw with an eye or ring head.	
159. <u>Common Nail</u> The basic nail for all types of construction. The shank is larger in diameter than a box nail making it less likely to bend. Common sizes 2d to 20d. Sizes larger than 20d are called spikes, the "d" is called a "penny" and equals roughly 1/4" in length	

160. <u>Box Nail</u> The shank is smaller in diameter than a common nail and helps prevent the wood from splitting. Ideal for light construction and general household use. Common sizes range from 2d to 16d.	
161. <u>Duplex Head Nail</u> Used for wooden scalfolding, forms, and other temporary construction. Common sizes are 6d, 8d, and 16d.	
162. <u>Wire Brad</u> The diameter of the nail is expressed in wire gauge and their length range from 1/4 to 1-1/2 inches long.	
163. <u>Spiral Shank Nail</u> Designed for the construction and repair of wood pallets. These spiral shank nails are also good for re-nailing wagon beds and trailers.	
164. <u>Lead-Head Nails</u> The lead washer is to prevent oxidation between the head of the nail and the galvanized roofing, and also prevents leakage.	
165. <u>Aluminum Roofing Nails</u> Sizes range from 1 to 1-1/2 inches in length.	
166. <u>Blue Plasterboard Nail</u> Bluish color and range is sizes of 1 and 1-1/2 inches.	
167. <u>Galvanized Roofing Nail</u> The head is about 1/2 inches in diameter, and the length will very from 3/4 to 2 inches.	

168. <u>Galvanized Nail</u> Common, box, and finish nails are available for exterior use with a galvanized coating. The coating may be hot dipped or electro-plated (EG).	
169. <u>Finishing Nail</u> Used for interior trim, moldings, cabinetwork and furniture. The nail is designed to be countersunk and the hole filled with wood putty. Sizes range from 2d to 20d.	
170. <u>Cement Coated Nail</u> Sizes range from 2d to 16d. Commonly found in a green coating in 8d and 16d ("sinkers")	
171. <u>Galvanized Shingle Nail</u> The 3d nail is generally used for shingling.	
172. <u>Furring Nail</u> This allows the wire to become a reinforcing agent and the nails hold the plaster to the wall.	
173. <u>Corrugated Fastener</u> The size is 1/4 to 1 inch in depth and 2 to 7 corrugations. Used to fasten wooden picture frames.	
174. <u>Cotter Pin</u> This prevents the nut from working loose. Also called a Cotter Key.	
175. <u>Pop Rivet Tool</u> It sets the rivet and is adjustable for various diameters of rivets.	

176. <u>Pop Rivet</u> A pop rivet tool is required to set the rivet.	
177. <u>Rivet Set</u> A rivet set is a small bar of steel with a hole drilled in the end to receive the rivet, and with a cup-like depression to form the round head on the rivet.	
178. <u>Soft Iron Rivet</u> The size is based on length and diameter.	
179. <u>T Hinge</u> Size is measured from hinge pin to the end of the strap. Commonly used in gates ("T" fastens to the post).	
180. <u>Strap Hinge</u> The size is measured from the hinge pin to the end of the strap.	

Appendix

Appendix A:

Electrodes are classified by the AWS (American Welding Society) in the following manner.

Example: E-6010
E = Electrode
60 = Strength is PSI; multiplied by 1,000 (example: 60 x 1,000 = 60,000 psi)
1 = Electrode Position
1. Flat, horizontal, vertical, overhead
2. Flat, and horizontal
3. Flat, horizontal, vertical down, overhead

0 = Type of Coating

LAST DIGIT	TYPES OF COATINGS	WELDING CURRENT
0	Cellulose sodium	DCEP
1	Cellulose potassium	AC, DCEP, DCEN
2	Titania sodium	AC, DCEN
3	Titania potassium	AC, DCEP
4	Iron powder titania	AC, DCEP, DCEN
5	Low hydrogen sodium	DCEP
6	Low hydrogen potassium	AC, DCEP
7	Iron powder iron oxide	AC, DCEP, DCEN
8	Iron powder low hydrogen	AC, DCEP

DCEP = direct current positive
DCEN = direct current negative
AC = alternating current

Appendix B:

Solid Welding Wire Electrode . . . Solid wire is classified in a similar manner as regular SMAW electrode. ER means it is an electrode or rod, 70 is tensile strength, S means it is solid wire, and 4 is the type of shielding gas needed.

TYPE	SHIELD GAS	DESCRIPTION
2	CO_2A-0, A-CO_2	CO_2A-0 = Carbon Dioxide, Argon and Oxygen
3	CO_2A-0, A-CO_2	
4	CO_2	CO_2 = Carbon Dioxide
5	CO_2	
6	CO_2A-0	A-CO_2 = Argon and Carbon Dioxide
7	CO_2A-0, A-CO_2	

Appendix C:

ABS Pipe and Fittings

ABS (acrylonitrile-butadiene-styrene) fittings are glued to together the same way as PVC fittings. The male and female ends are designated by “hub” (female end), and “spigot” (male end), and male or female pipe thread. Sizes range from 1-1/2 to 4 inches. Pipe comes in 10 and 20 foot joints. Elbows are not designated by degrees but by 1/8 bend for 45 degrees and 1/4 bend for 90 degrees

Appendix D:

PVC Pipe, Fittings and Tools

PVC pipe and fittings are classified by size and a letter symbol to designate their use. As an example, 90^0 SxS elbow, means a 90^0 elbow with slip ends for gluing. “S” stands for slip and “T” stands for threaded. The “S” or “T” may be internal or external. PVC stands for Poly Vinyl Chloride, the compound used to manufacture PVC pipe. PVC pipe is manufactured in weight or thickness classes. Weight classes are class 100, 125, 200, schedule 40 and schedule 80. Class 125 being the thinnest wall and schedule 80 being the thickest and strongest.

Appendix E:

Saw Blades

Saw size is determined by the length of the blade in inches. The most popular blade sizes are 24" and 26". A coarse saw is used for fast work and cutting through greenwood. A fine saw is used for smooth and accurate cutting of dry seasoned wood.

Tool Index

Tool Name:	Tool No:	Pic/Desc Page:
45 Degree Elbow	395	55
90 Degree Elbow	396	55
ABS Pipe	446	62
Acetylene Regulator	550	77
Acid Brush	378	53
Adaptor-Spigot x Female Pipe	453	63
Adjustable Trammel Points	294	41
Adjustable Wrench	42	6
Air Compressor	83	12
Air Pressure Type Grease Gun	517	72
Airless Paint Sprayer	571	79
Aluminum	231	32
Aluminum Roofing Nails	165	23
Angle Grinder	301	42
Angle Iron	242	34
Anvil	82	12
Arc Welder Power Supply	528	74
Armored Cable	483	67
Auger Bit	334	47
Aviation Snips	296	42
Back Saw	320	45
Ball Pein Hammer	261	37
Ball Valve	411	57
Band Saw	350	49
Bar Clamp	50	7
Barbed Wire	197	28
Barrel Bolt	184	26
Battery Pliers	6	1
Bell Reducer	400	56
Belt Sander	344	48
Bench Brush	62	9
Birch	303	42
Black Pipe	390	54
Blacksmith's Hammer	262	37
Block Plane	340	48
Blue Plaster Board Nail	166	23
Bolt Cutters	77	11
Bottoming Tap	283	39
Bow Rake	75	11
Bowline	227	32
Box End Wrench	39	6
Box Nail	160	23
Brake	299	42
Brass	232	33
Brazing Rod	553	77
Brick Chisel	372	52
Brick Jointer	367	51
Brick Layer's Hammer	370	52

Tool Name:	Tool No:	Pic/Desc Page:
Brick Trowel	368	52
Builder's Level	113	16
Bull Float	360	50
Bushing	399	56
Butt Hinge	181	26
C Cap	429	60
C Clamp	53	8
C Clamp Locking Pliers	55	8
Cap	405	57
Cap Nut	142	20
Cap Screw	126	18
Cape Chisel	267	37
Carpenter's Level	97	14
Carriage Bolt	128	18
Cartridge Fuse	479	67
Cast Iron	239	33
Castellated Hex Nut	140	20
Cats Paw	329	46
Caulking Gun	557	78
Cedar	304	43
Cement Coated Nail	170	24
Center Punch	11	2
Chain Hoist	217	31
Chain Link Fencing	198	28
Chain Saw	78	11
Chain Wrench	43	6
Chalk Line	99	14
Channel Iron	250	35
Check Valve	414	58
Chipping Hammer	540	75
Chuck	252	35
Chuck Key	251	35
Circuit Breaker	478	67
Circular Saw	348	49
Circular Saw Blade	324	45
Clay Picks	72	10
Clevis or Shackle	207	29
Close Nipple	392	55
Clove Hitch	228	32
Clutch Driver	22	3
Cock Valve	413	58
Cold Chisel	268	38
Cold Rolled Steel	238	33
Combination End Wrench	40	6
Combination Square	91	13
Come-A-Long	187	26
Common Nail	159	22
Compression Coupling	442	62

Tool Name:	Tool No:	Pic/Desc Page:
Compression Gauge	523	73
Compression Spring	202	28
Concrete Edger	365	51
Concrete Tampers	358	50
Conduit Bender	467	65
Conduit Strap	469	66
Continuity Tester	454	63
Continuous Hinge	182	26
Contractors Wheelbarrow	69	10
Coping Saw	322	45
Copper	233	33
Copper Coated Mild Steel	552	77
Copper Pipe	418	58
Copper Tubing	419	58
Cord Cap	489	68
Cord Connector	490	68
Core Solder	472	66
Corner Clamp	57	8
Corner Trowel	366	51
Corrugated Fastener	173	24
Cotter Pin	174	24
Cotton Rope	222	31
Counter Sink	256	36
Coupling	394	55
Cross	402	56
Crow Bar	48	7
Curved Claw Hammer	313	44
Cut Off Saw	84	12
Cutter Mattocks	71	10
Cutting Tip	546	76
Cutting Torch	545	76
CxC Coupling	422	59
CxC Elbow	420	59
CxC Reducing Coupling	426	59
CxC Street Ell	421	59
CxC Union	425	59
CxCxC Tee	423	59
CxCxT Tee	424	59
CxT Adaptor or Male Adaptor	428	60
CxT Female Adaptor	427	59
Dead Blow Hammer	260	37
Deck Screws	153	22
Deep Socket	29	4
Depth Gauge	106	15
Diagonal Cutting Pliers	5	1
Dial Caliper	101	14
Diamond Chisel	269	38
Diamond Plate	236	33

Tool Name:	Tool No:	Pic/Desc Page:
Die Stock	288	40
Direct Elevation Rod	120	17
Disc Sander	345	48
Dividers	105	15
Double Bit Axe	3	1
Double Cut file	276	39
Double Loop Chain	215	30
Double Wye Hub	450	63
Douglas Fir	305	43
Drain Auger	416	58
Drift Punch	12	2
Drill Drift	254	36
Drill Press	355	49
Drill Press Vise	58	8
Drop Cloth	563	78
Drywall Saw	321	45
Drywall Screws	154	22
Drywall Trowel	357	50
Duplex Receptacle	495	69
Duplex-Head Nail	161	23
Dust Mask	564	79
Eight Point Socket	27	4
Electric Cord	486	68
Electric Drill	354	49
Electric Fence Gate Handle	186	26
Electric Soldering Iron	474	66
Electrical Metallic Tubing (EMT)	502	70
Electrode Holder	533	74
EMT Connector	507	71
EMT Coupling	508	71
EMT Sweep	511	71
Engineer's Hammer	263	37
Expanded Metal	237	33
Expansion or Adjustable Reamer	522	73
Expansive Bit	336	47
Extension Bar	33	5
Eye Bolt	134	19
Eye Splice	225	32
Face Shield	81	12
Feeler Gauge	107	15
Female Adaptor	436	61
Female Adaptor-Hub x Female Pipe	451	63
Fence Pliers	9	2
Fender Washer	146	21
Fiberglass Tape	88	13
File Card	279	39
File Handle	272	38
Filter	567	79

Tool Index

Tool Name:	Tool No:	Pic/Desc Page:
Finish Nail	169	24
Finishing Sander	343	48
Finishing Trowel	361	51
Finishing Washer	147	21
Fish Tape	459	64
Flaring Tool	376	53
Flat Bar	241	34
Flat Leg Pattern Dividers	292	41
Flat Pry Bar	46	7
Flat Washer	145	21
Flex Handle	35	5
Flex Socket	30	4
Flexible Conduit	504	70
Floor Flange	403	56
Flux Coated Brazing Rod	554	77
Forstner Bit	337	47
Fractional Vernier Caliper	102	14
Framing Square	93	13
Fresno Trowel	359	50
Friction Tape	476	67
Furring Nail	172	24
Fuse Puller	458	64
Galvanized Nail	168	24
Galvanized Pipe	391	54
Galvanized Roofing Nail	167	23
Galvanized Sheet	234	33
Galvanized Shingle Nail	171	24
Gas Regulator	531	74
Gate Latch	185	26
Gate Valve	409	57
Glass Cutter	555	77
Glazier Points	556	78
Global Position System Receiver	118	17
Globe Valve	410	57
GMAW Wire Feed	529	74
Grab Hook	211	29
Grade 2 Bolt	131	18
Grade 5 Bolt	132	19
Grade 8 Bolt	133	19
Grinder	302	42
Groover	364	51
Ground Clamp	532	74
Ground Rod	492	69
Grounding Rod Clamp	491	68
GTAW Torch	530	74
Hack Saw	290	41
Half Round File	274	38
Hammer Tacker	87	12

Tool Name:	Tool No:	Pic/Desc Page:
Hand Axe	1	1
Hand Cross Cut Saw	317	44
Hand Drilling Hammer	265	37
Hand Float	362	51
Hand Level	119	17
Hand Rip Saw	318	44
Hand Screw Clamp	326	46
Hard Facing Electrode	535	74
Hawks	369	52
H-Beam	249	35
Heating Tip	548	77
Hex Key	45	7
Hex Nut	137	19
Hickey	466	65
High Volume Low Pressure Sprayer	572	80
Hinge Hasp	183	26
Hog Ringer	76	11
Hole Punch	16	3
Hole Saw	323	45
Hose Bib	412	58
Hose Clamp	408	57
Hot Rolled Steel	243	34
Hydraulic Shear	300	42
I-Beam	248	35
Impact Wrench	520	73
Inside Calipers	103	14
Insulated Staple	471	66
Irrigating Shovel	67	9
Jack Plane	342	48
Jig Saw	346	48
Junction Box	501	70
Keyhole or Compass Saw	319	44
Knife Fuse	480	67
Knockout Punch	457	64
Lag Bolt	127	18
Lamp Holder	496	69
Laser Level	116	17
Laser Level Receiver	117	17
Lashing Straps	205	29
Lead-Head Nails	164	23
Leather Gloves	541	76
Leather Punch	15	2
Lever Type Grease Gun	518	72
Line Level	98	14
Lineman's Pliers	462	64
Load or Chain Binder	210	29
Lock Washer	144	20
Locking Pliers	10	2

Tool Name:	Tool No:	Pic/Desc Page:
Locking Welding Clamp	54	8
Long Nose Pliers	461	64
Long Sweep 1/4 Bend Hub	447	62
Machine Bolt	130	18
Machine Screw	129	18
Machinist's Vise	59	8
Male Adaptor	437	61
Male Adaptor-Hub x Male Pipe	452	63
Malleable Iron Washer	148	21
Mallet	316	44
Manila Rope	221	31
Marking Gauge	96	14
Masking Tape	562	78
Masonry Bit	374	52
Measuring Wheel	90	13
Micrometer	100	14
Miter Saw	349	49
Mixing Paddle	566	79
Morse Taper Sleeve	253	36
Mortar Hoe	371	52
Mud Pan	356	50
Multi-Tester or Volt-Ohm Meter	456	64
Nail Gun	327	46
Nail On Electric Fence Insulator	194	27
Nail Puller	328	46
Nail Set	330	46
Nipple	393	55
NM Cable Cutter	460	64
Non-Metallic Cable	485	68
Non-Metallic Cable Ripper	465	65
Non-Metallic Cable Staples	470	66
Non-Metallic Clamp	506	71
Non-Woven Abrasive Pad	560	78
Nut Driver	25	4
Nylon Rope	220	31
Oak	306	43
Offset Screwdriver	20	3
Open End Wrench	38	6
Oriented Strand Board (OSB)	307	43
Outside Calipers	104	15
Oxygen Regulator	551	77
P Trap Hub with Union	448	63
Paint Brush	568	79
Paint Roller and Pan	569	79
Particle Board	308	43
Parts Brush	63	9
Philadelphia Rod	121	17
Phillips Screwdriver	17	3

Tool Name:	Tool No:	Pic/Desc Page:
Pick Mattocks	70	10
Pin Punch	13	2
Pipe Clamp	51	7
Pipe Clamp	406	57
Pipe Cutter	383	53
Pipe Die	388	54
Pipe Die Stock	387	54
Pipe Joint Compound	415	58
Pipe or Burring Reamer	386	54
Pipe Plug	404	57
Pipe Tap	389	54
Pipe Vise	382	53
Pipe Wrench	381	53
Planer	339	47
Plasma Cutter	543	76
Plastic Covered Electric Wire	481	67
Plastic Tape	475	66
Plow Bolt	136	19
Plug Tap	284	40
Plumb Bob	112	16
Plumbers Tape	407	57
Plywood	309	43
Pop Rivet	176	25
Pop Rivet Tool	175	24
Posthole Auger	74	11
Posthole Digger	73	11
Poultry Wire Netting	199	28
Power Timing Light	525	73
Pressure Treated Lumber	310	43
Prick Punch	14	2
Proof Coil Chain	213	30
Propane Torch	379	53
Protractor	108	15
Pry or Fitting Bar	47	7
Push Broom	61	9
Putty Knife	558	78
PVC Conduit	512	72
PVC Coupling	513	72
PVC Elbow or Sweep	515	72
PVC Glue	445	62
PVC Male Adaptor	516	72
PVC Pipe	430	60
PVC Pipe Cutter	384	54
PVC Primer	444	62
PVC Pull Elbow	514	72
Radial Arm Saw	351	49
Rafter Square	94	13
Raintite Hub	498	69

Tool Index

Tool Name:	Tool No:	Pic/Desc Page:
Range Pole	123	17
Ratchet Handle	36	5
Reciprocating Saw	347	48
Rectangular Tubing	246	34
Reduced Shank Drill	258	36
Redwood	311	43
Reinforcing Bar	375	52
Repair Link	208	29
Respirator	565	79
Retaining Ring Pliers	8	2
Rigid Conduit	503	70
Rigid Coupling	505	71
Rigid Elbow or Sweep	510	71
Rigid Entrance Ell	509	71
Ripping Bar	49	7
Rivet Set	177	25
Rod Target	122	17
Rope Thimble	218	31
Rotary Hammer	85	12
Round File	273	38
Round Nose Chisel	270	38
Round Point Shovel	66	9
Router	338	47
Rubber Tape	477	67
S Cap	443	62
SAE Die	286	40
SAE Tap	280	39
Safety Glasses	79	11
Safety Goggles	80	12
Sand Paper	559	78
Sash Chain	216	30
Scoop Shovel	68	10
Scratch Awl	110	16
Screw Extractor	289	41
Screw Eye	158	22
Screw Hook	157	22
Screwdriver	353	49
Screwdriver Bits	21	3
Scribe	111	16
Self Drilling Screws	151	21
Self Tapping Screws	155	22
Self-Locking Nuts	139	19
Service Entrance Cap	497	69
Service Panel	499	69
Set Screw	150	21
Shear	297	42
Sheet Bend	229	32
Sheet Metal Layout Rule	291	41

Tool Name:	Tool No:	Pic/Desc Page:
Sheet Metal Screws	152	22
Sheet Metal Shear	298	42
Shingler's Hatchet	312	44
Single Bit Axe	2	1
Single Conductor	482	67
Single Cut File	275	38
Six Point Socket	26	4
Sledge Hammer	264	37
Slide Bar Handle	34	5
Sliding "T" Bevel	95	13
Slip Hook	212	30
Slip Joint Combination Pliers	4	1
Slotted Hex Nut	141	20
Slotted Screwdriver	18	3
SMAW Electrode	534	74
Smooth Galvanized Wire	196	28
Smooth Plane	341	48
Soapstone	109	16
Socket Adaptor	32	5
Soft Iron Rivet	178	25
Solder	380	53
Soldering Gun	473	66
Solderless Connector	488	68
Solid Welding Wire Electrode	537	75
Spade Bit	335	47
Spark Plug Gauge Set	524	73
Speed Handle	37	6
Spiral Shank Nail	163	23
Sponge Rubber Float	363	51
Spot Welder	527	73
Spray Gun	570	79
Spring Clamp	56	8
Square Bar	244	34
Square File	277	39
Square Knot	226	32
Square Nut	138	19
Square Point Shovel	65	9
Square Recess Screwdriver	23	3
Square Tubing	247	34
Stainless Steel	235	33
Staple Gun	86	12
Staples	195	27
Star Drill	373	52
Steel Fence Posts	192	27
Steel Tape	89	13
Steel Wool	561	78
Straight Claw Hammer	314	44
Straight Shank Twist Drill	257	36

Tool Name:	Tool No:	Pic/Desc Page:
Strap Clamp	52	8
Strap Hinge	180	25
Strap Nail Drive	468	65
Strap Wrench	44	7
Street Ell	397	56
Strip Iron	240	34
Stubby Screwdriver	19	3
Surform File	332	47
Surveying Tripod	115	16
Surveyors Arrows	125	18
Surveyor's Steel Tape	124	18
Switch Box	500	70
Swivel	209	29
SxS Coupling	431	60
SxS Elbow	432	60
SxS Reducer Bushing	440	62
SxS Street Ell	434	61
SxSxS Tee	438	61
SxSxT Tee	439	61
SxT Elbow	433	61
SxT Reducer Bushing	441	62
SxT Street Ell	435	61
T Hinge	179	25
Table Saw	352	49
Tachometer	526	73
Tack Hammer	315	44
Tap Wrench	285	40
Taper or Three Square File	278	39
Taper Reamer	255	36
Taper Tap	282	39
Tapered Shank Twist Drill	259	36
Tee	398	56
Teflon Tape	417	58
Tension Spring	203	28
Three-Way Toggle Switch	494	69
Tin Snips	295	41
Tinner's Hammer	266	37
Tip Cleaners	549	77
Toggle Bolt	135	19
Toggle Switch	493	69
Tool Steel	245	34
Torch Handle	544	76
Torque Wrench	521	73
Torsion Spring	204	29
Torx Head Screwdriver	24	4
Torx Head Screws	149	21
T-Post	191	27
T-Post Insulator	193	27

Tool Name:	Tool No:	Pic/Desc Page:
Transit	114	16
Trucker's Hitch	230	32
Try Square	92	13
Tubing Cutter	385	54
Tubing Wrench	41	6
Tubular Wire Electrode	538	75
Tungsten Electrode	536	75
Turn Buckle	190	27
Twelve Point Socket	28	4
Twist Link Chain	214	30
Twisted Polypropylene Rope	223	31
UF Cable	484	68
Union	401	56
Universal Joint	31	4
USS Die	287	40
USS Tap	281	39
Utility Knife	331	46
Voltage Tester	455	63
Water Pump Pliers	7	1
Welded Wire Fence	200	28
Welding Goggles	542	76
Welding Helmet	539	75
Welding Tip	547	76
Whet Stone	271	38
Winch	206	29
Wing Dividers	293	41
Wing Nut	143	20
Wire Brad	162	23
Wire Brush	64	9
Wire Brush	377	53
Wire Grip	189	27
Wire Nut	487	68
Wire Rope	224	32
Wire Rope Clamp	219	31
Wire Stretcher	188	27
Wire Stripper	463	64
Wire Stripper and Crimping Tool	464	65
Wood Chisel	325	46
Wood Rasp	333	47
Wood Screws	156	22
Woodworker's Vise	60	9
Woven Wire Fencing	201	28
Wye Hub	449	63
Zerk Grease Fitting	519	72